PUKINIK, J.

CORRECT SHARPENING OF GRINDING DISKS. P. 98.

STROJNISKI VESTNIK. (Fakulteta za elektroteniko in stronjnistvo Universe v Ljubljani, Institut za turbostroje v Lubljani, Drustvo strojnih inzenirjev in tehnikow LR Slovenije in Strojna industrija Slovenje) Ljubljana.
Vol. 3, no. 4/5, Sept. 1957.

Monthly List of East European Accession (EAI) LC Vol. 8, no. 6, June 1959.

Uncl.

RYABIN'KIY, Bronislav Yakovlevich; ADARYUKOV, G.I., inzh., retsenzent; BERLYAND, S.S., inzh., retsenzent; GERASIMENKO, V.A., inzh., retsenzent; GRUDSKIY, V.A., inzh., retsenzent; DASHEVSKIY, Ye.B., inzh., retsenzent; KARPMAN, Ya.I., inzh., retsenzent; KOROLEV, M.N., inzh., retsenzent; KORSAKOV, A.A., inzh., retsenzent; LISENKO, T.P., inzh., retsenzent; PEKILIS, I.B., inzh., retsenzent; REVYAKIN, A.A., inzh., retsenzent; ROMANOVICH, N.D., inzh., retsenzent; FILIPPOV, S.M., inzh., retsenzent; BRUSHTEYN, A.I., red.izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Planning and the economics of metallurgical plants] Planirovanie i ekonomika metallurgicheskikh zavodov. Izd.3., perer. i dop. Moskva, Metallurgizdat, 1963. 754 p. (MIRA 16:4)
(Steel industry--Management)

KAZANTSEV, A.S., kandidat tekhnicheskikh nauk; PEKIN, V.B., inzhener, redaktor; REZNITSKIY, L.M., kandidat tekhnicheskikh nauk, redaktor.

[Anodic-mechanical polishing of metals in repair works] Anodno-mekhanicheskoe shlifovanie metallov v remontnom proizvodstve. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1955. 86 p.
(Metals--Finishing)

VEDEROV, S.; PEKISHEV, K.M.

Rapid methods of conducting a large-scale survey of a river bed. Mor.i rech. flot 13 no.1:28 My '53. (MLRA 6:10)
(Surveying) (Rivers)

14-1-389

Translation from: Referativnyy Zhurnal, Geografiya, 1957, Nr 1, p. 37 (USSR)

AUTHORS: Vendrov, S.L., Kostyanitsyn, M. N., Pekishev, K. M.

TITLE: Observations on the Deformation of the Shores of the Tsimlyanskoye Reservoir made in 1952 - 1953 by the Moscow State Institute for the Design and Planning of Water Transport (Nablyudeniya Mosgiprovodtransa za deformatsiyey beregov Tsimlyanskogo vodokhranilishcha v 1952 - 1953 gg)

PERIODICAL: Tr. Okeanogr. komis. AN SSSR, 1956, Nr 1, pp. 160-162

ABSTRACT: A priliminary study made in August and September of 1952 (before the reservoir had been filled) indicated that during the 4 months of operation of the reservoir an important disintegration of the shores had taken place

Card 1/3

PERISHEV, K.M.

VENDROV, S.L., kandidat geograficheskikh nauk; LYCHEVKO, B.F.;
PATRIKEYEV, V.V., kandidat khimicheskikh nauk; PERISHEV, K.M.

The use of phosphors to study sand drifts along reservoir coasts.
Rech. transp. 16 no.4:26-29 Ap '57. (MLRA 10:5)
(Luminescent substances) (Sand)

GONCHARENKO, V., tekhnicheskiy inspektor; SOLOV'YEV, L.; LEKONT, G.; SEROVA, I.; GOLUB', T.; MEDVEDEV, L.; PEKISHEV, V.; ANISIMOV, P.; ASTASHEVA, V.; DOSHCHATOV, V.; SERGEYEV, V.; YUOZAPAVICHYUS, L. [Juozapavicius, L.]; MISHURIS, M.; VORONTSOV, N.; BOCHKAREV, G.

Readers' conference by correspondence. Okhr. truda i sots. strakh. 5 no.5:31-32 My '62. (MIRA 15:5)

1. Tekhnicheskiye inspektora Omskogo oblastnogo soveta profsoyuzov (for Solov'yev, Lekont, Serova, Golub', Medvedev). 2. Tekhnicheskiy inspektor respublikanskogo soveta profsoyuzov, Turkmenskaya SSR (for Pekishev). 3. Zaveduyushchiy otdelom sotsial'nogo strakhovaniya Tyumenskogo oblastnogo soveta professional'nykh soyuzov (for Doshchatov). 5. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Arkhangel'skogo soveta professional'nykh soyuzov (for Sergeyev). 6. Zaveduyushchiy otdelom okhrany truda Litovskogo respublikanskogo soveta professional'nykh soyuzov (for Yuozapavichyus). 7. Zaveduyushchiy yuridicheskoy konsul'tatsiyey Luganskogo oblastnogo soveta professional'nykh soyuzov (for Mishuris). 8. Zaveduyushchiy otdelom sotsial'nogo strakhovaniya Smolenskogo oblastnogo soveta professional'nykh soyuzov (for Vorontsov). 9. Predsedatel' komissii okhrany truda Barnaul'skogo motornogo zavoda (for Bochkarev).
(Industrial hygiene--Periodicals)

VERETENNIKOV, V., kand.tekhn.nauk, starshiy nauchnyy sotrudnik;
SELIVERSTOV, V., kand.tekhn.nauk, starshiy nauchnyy sotrudnik;
PEKISHEV, Yu.

Automatic control of the firing equipment of marine fire-tube boilers. Mor.flot 19 no.12:16-18 D '59.
(MIRA 13:3)

1. TSentral'nyy nauchno-issledovatel'skiy institut morskogo flota (for Veretennikov). 2. Leningradskiy institut vodnogo transporta (for Seliverstov). 3. Nachal'nik Tekhnicheskogo otdela Upravleniya Murmanskogo tralovogo flota (for Pekishev).
(Boilers, Marine--Firing) (Automatic control)

1ST AND 2ND ORDERS

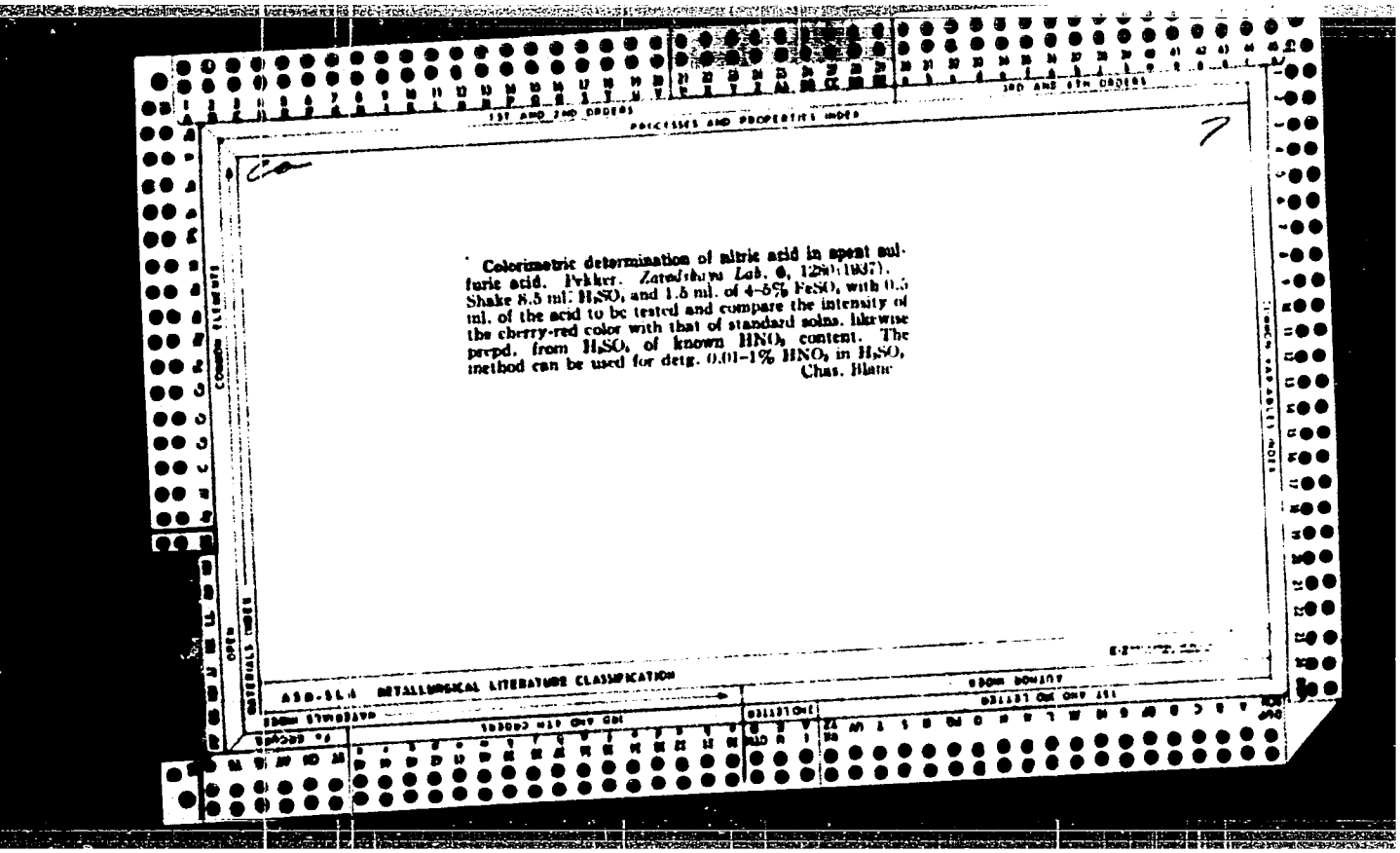
PROCESSES AND PROPERTIES INDEX

B-I-8

Colorimetric determination of nitric acid in spent sulphuric acid. [illegible] (Zavod. Lab., 1937, 6, 1390).—0·5 ml. of acid is added to 0·5 ml. of conc. H_2SO_4 and 1·5 ml. of 4—5% $FeSO_4$, and the red coloration developing is compared with that given by a series of standard solutions containing 0·01—1% of HNO_3.

R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Colorimetric determination of nitric acid in spent sulfuric acid. Ivkker. *Zavodskaya Lab.*, 6, 1280(1937). Shake 8.5 ml. H_2SO_4 and 1.5 ml. of 4–5% FeSO, with 0.5 ml. of the acid to be tested and compare the intensity of the cherry-red color with that of standard solns. likewise prepd. from H_2SO_4 of known HNO_3 content. The method can be used for detg. 0.01–1% HNO_3 in H_2SO_4.
Chas. Blanc

PEKKER, A.G.

NOVI, V.A.; PETROVS'KIY, V.V.; GROZENKO, I.B.; PEKKER, A.G.

Changes in some indicators of the functional state of the cerebral cortex during the training of athletes [with summary in English] Fiziol.zhur. [Ukr.] 3 no.1:38-46 Ja-F '57. (MLRA 10:3)

1. Institut fiziologii im. O.O.Bogomol'tsya Akademii nauk URSR, laboratoriya vishchoi nervovoi diyal'nosti
(ATHLETES) (CEREBRAL CORTEX)

[illegible]

U... Human and Animal Physiology - Physiology [illegible]
[illegible]rts.

Abs Jour : Ref Zhur - Biol., No 4, 1958, [illegible]

Author : [illegible] Novi, V.V. Petrov[illegible], [illegible]
Inst : -
Title : [illegible] in [illegible]
the Cerebral Cortex [illegible]
[illegible]

Orig Pub : [illegible]

Abstract : No abstract.

Card 1/1

PEKKER, A. L.
N. L. OLVIN, World Pwr Conf., Sect. A5/5, 1947, 5lpp.

TSELUYKO, Yu.I.; SADAKH, A.F.; BOBOSHKO, V.S.; DODOKA, V.G.; LIKHININ, A.I.; Prinimali uchastiye: PEKKER, A.N.; LOLA, V.N.; KSENZUK, F.A.; BONDAREV, L.V.; REZNIKOV, Yu.N.; KLEKL', A.E.

Study of the heating of metal in a holding furnace. Stal' 25 no.5:462-464 My '65. (MIRA 18:6)

1. Nauchno-issledovatel'skiy i proyektnyy institut metallurgicheskoy promyshlennosti.

YEVTUSHENKO, F.A.; YEN'KOV, Ye.V.; PEKKER, A.N.

Natural gas to intensify the heating of ingots. Metallurg 10 no.5:25-26 My '65. (MIRA 18:6)

1. Zavod "Zaporozhstal'".

PEKKER, A.N.

133-8-24/28

AUTHORS: Yen'kov, Ye.V., Sykulev, M.A. and Pekker, A.N.(Engineers).

TITLE: An increase of productivity and an improvement in the operation of continuous heating furnaces.(Uvelicheniye proizvoditel'nosti i uluchsheniye raboty metodicheskikh pechey).

PERIODICAL: "Stal'" (Steel), No.8, 1957,pp.755-757 (USSR).

ABSTRACT: Improvements in the performance of three-zone continuous heating furnaces for heating slabs for the thin-sheet mill in the Zaporozhstal' Works are described. The diagram of the furnace is shown in Fig.1. Its initial output was 40 ton/hr with hot charge and 65 ton/hr with cold charge. Studies of the thermal operation of the furnaces indicated that their thermal load was insufficient, the distribution of heat along and across the furnaces was unsatisfactory, the combustion was poor and the presence of a considerable cold air infiltration into the soaking zone through the delivery face. Thermal load on furnaces was increased by the following modifications: an increase in the power of blowers delivering combustion air, a decrease in the hydraulic resistance of gas pipes supplying burners, an increase in the calorific value of the gas from 2200 to 2300-2400 K cal/mm^3 and an increase in its

Card 1/2

[illegible]

[illegible]NOV, Ye.V., inzhener; SYRULEV, M.A., inzhener; PEKKER, A.N., inzhener.

Increasing the output and improving the performance of holding furnaces. Stal' 17 no.9:755-757 Ag '57. (MLRA 10:9)

1. Zavod "Zaporozhstal'."
(Rolling mills--Equipment and supplies)

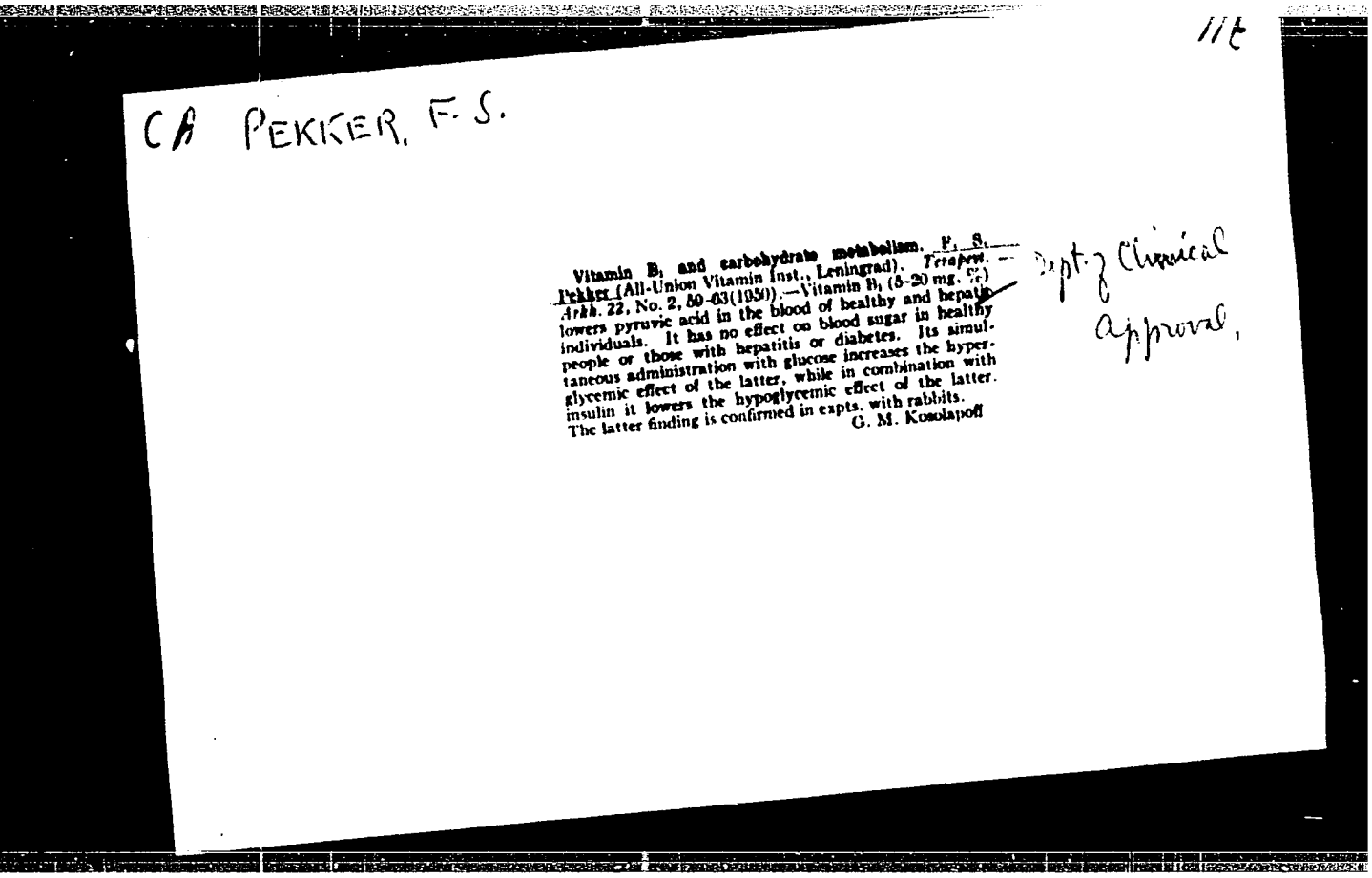
YEN'KOV, Ye.V., inzh.; PEKHTS, A.N., inzh.

Selecting a shielding gas for bright annealing of sheet iron coils. Stal' 24 no.[illegible]-1127 D '64. (MIRA 18:2)

1. Zavod "Zaporozhstal'".

KUTAY, A.K.; PEKKER, F.P.

Visual active control of circular grinding machines. Mashinostroitel' no.11:10-11 N '63. (MIRA 16:11)



11t

CA PEKKER, F. S.

Vitamin B_1 and carbohydrate metabolism. F. S. Pekker (All-Union Vitamin Inst., Leningrad). *Terapev. Arkh.* 22, No. 2, 59-63(1950).—Vitamin B_1 (5-20 mg. %) lowers pyruvic acid in the blood of healthy and hepatic individuals. It has no effect on blood sugar in healthy people or those with hepatitis or diabetes. Its simultaneous administration with glucose increases the hyperglycemic effect of the latter, while in combination with insulin it lowers the hypoglycemic effect of the latter. The latter finding is confirmed in expts. with rabbits.
G. M. Kosolapoff

Dept. of Clinical approval,

PEKKER, F.S.

Vitamin B_1 and pyruvic acid. Trudy VNIVI 6:203-206 '59.
(MIRA 13:7)

1. Biologicheskiy otdel Vsesoyuznogo nauchno-issledovatel'skogo vitaminnogo instituta.
(THIAMINE) (PYRUVIC ACID)

PEKKER, F. S.

"Metabolism of Vitamin B_1 and Its Interrelation with Carbohydrate Metabolism and Sulfathiazole. (Clinico-Experimental Investigations)." Leningrad Affiliate of the All-Union Sci Res Vitamin Inst and Chair of Propedeutics of Internal Diseases of the Leningrad Sanitary-Hygienic Medical Inst, Leningrad, 1952
(Dissertation for the Degree of Candidate of Biological Sciences)

SO: Knizhnaya Letopis', No. 32, 6 Aug 55

PEKKER, F.S.

Vitamin B_1 and the level of blood sugar. Trudy VNIVI 6: 207-216 '59. (MIRA 13:7)

1. Lenfilial Vsesoyuznogo nauchno-issledovatel'skogo vitaminnogo instituta.

(THIAMINE) (BLOOD SUGAR)

PEKKER, G.Ya., Cand Med Sci -- (diss) "Sudden death during ~~operative~~ surgical intervention and its ~~medical-jurisprudential~~ medicolegal evaluation." Mos, 1956, 18 pp (First Mos Order of Lenin Med Inst im I.M. Sechenov) 200 copies (KL, 27-56, 118)

FRKER, G.Ya.

Sudden death during surgery. Khirurgiia 34 no.3:99-105 Mr '58. (MIRA 12:1)

1. Iz kafedry sudebnoy meditsiny (zav. - prof. V. F. Chervyakov) I Moskovskogo ordena Lenina meditsinskogo instituta im. I.M. Sechenova.
(CARDIAC ARREST
in surg., etiol. & medicolegal aspects (Rus))
(JURISPRUDENCE, MEDICAL
on cardiac arrest in surg. (Rus))

PEKKER, G.Ya.

Present-day problems of thanatology; review of some medicolegal works published abroad during 1958-60. Sud.-med. ekspert. 5 no.1: 58-59 Ja-Mr '62. (MIRA 15:4)

1. Kafedra sudebnoy meditsiny (zav. - prof. V.F.Chorvakov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova.
(DEATH--PROOF AND CERTIFICATION)

PEKKER, G. Ya. (Moskva)

Postmortem histochemical determination of cholinesterase activity. Arkh. pat. 25 no.7:80-84 '63 (MIRA 16:12)

1. Iz kafedry sudebnoy meditsiny (zav. - zasluzhennyy deyatel' nauki prof. V.F. Chervakov) I. Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova.

PEKKER, G.Ya. (Moskva)

Possibilities of determining cholinesterase activity in the blood of cadavers. Arkh. Pat. 25 no.6:57-62 '63.
(MIRA 17:1)

1. Iz kafedry sudebnoy meditsiny I Moskovskogo ordena Lenina meditsinskogo instituta imeni Sechenova (zav. - zasluzhennyy deyatel' nauki prof. V.F. Chervakov).

PEKKER, G.Ya.

Medicolegal evaluation of a thyrolymphatic condition. Sud.-med. ekspert. 2 no.1:22-27 Ja-Mr '59. (MIRA 13:4)

1. Kafedra sudebnoy meditsiny (zaveduyushchiy - prof. V.F. Chervakov) I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M. Sechenova.

(LYMPHATISM)

PEKKER, G.Ya.

So-called death by anesthesia. Trudy 1-go MMI 3:193-206 '57.
(MIRA 14:5)

1. Iz kafedra sudebnoy meditsiny (zav. prof. V.F.Chervakov) 1-go Moskovskogo Ordena Lenina meditsinskogo instituta imeni Sechenova.
(ANESTHESIA--COMPLICATIONS AND SEQUELAE)
(DEATH)

SOV/144-59-11-20/21

AUTHOR: Pekker, I.I., Candidate of Technical Sciences, Docent

TITLE: An All-Union Seminar on Contactless Magnetic Devices for Automatic, Telemechanical and Computing Equipment

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 11, pp 137-138 (USSR)

ABSTRACT: An All-Union Seminar on contactless magnetic devices for automatic telemechanical and computing equipment was held from the 13th to 16th October in Moscow. It was called by the Institute of Automatics and Telemechanics of the Academy of Sciences, USSR. The seminar was opened by Professor B.S. Sotskov, Doctor of Technical Sciences. More than thirty reports were read. The first day of the seminar was mainly concerned with circuits based on amplidynes combined with semi-conductor triodes and diodes. Five reports on this subject are mentioned. The second day was devoted to magnetic elements for use in computers; there were ten reports on this subject. The third day dealt with various subjects, including: consideration of logical circuits for automatic control purposes; the design of square-loop circuit elements; a magnetic

Card 1/2

PEKKER, Ioel' Iosifovich, kand.tekhn.nauk, dotsent

Experimental data for selecting drum-wound d.c. electromagnets. Izv. vys. ucheb. zav.; elektromekh. 4 no.12:56-66 '61. (MIRA 15:1)

1. Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta.
(Electromagnets)

S/144/62/000/007/002/002
D289/D308

AUTHOR: Pekker, Ioel' Iosifovich, Candidate of Technical Sciences, Docent

TITLE: Determination of possible deviations of the pull of an electromagnet

PERIODICAL: Izvestia vysshikh uchebnykh zavedeniy. Elektromekhanika, no. 7, 1962, 778 - 785

TEXT: In an electromagnet with a given size of air gap there can be wide variations of pull caused either by discrepancy of dimensions from nominal design values, or by a change in operating conditions, wear and ageing. The pull of an electromagnet (F) may be considered as a function of a series of parameters x_i where

$$F = F(x_1, x_2, \ldots x_n). \quad (1)$$

Maximum deviation of pull

Card 1/3

Determination of possible deviations ...

works out a detailed practical example for a 220V d.c. electromagnet, giving a pull of 13.6 kg. The author calculates deviation of pull separately for each of the following : variation of coil wire diameter, mean length of turn, resistance of wire, diameter of core, size of effective air gap, depth of loading of the core and length of coil. Calculations are also given for maximum deviation and root-mean-square deviation of force due to decrease of supply voltage and increase of temperature, also similar deviations due to diversity of dimensions at nominal supply voltage and temperature. From the practical example it is evident that considerably high deviation of pull from the nominal occur due to change of operating conditions: permissible voltage and temperature variations give a variation of pull of 60 %. Deviation due to diversity of design parameters are about 14 % and a maximum deviation, about 20 %.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnic Institute)

SUBMITTED: April 7, 1962

Card 3/3

PEKKER, Iosel' Iosifovich, kand.tekhn.nauk, dotsent; NIKITENKO, Aleksandr Grigor'yevich, starshiy prepodavatel'

Research in low-voltage apparatus engineering. Izv. vys. ucheb. zav.; elektromekh. 6 no.1:134-135 '63. (MIRA 16:5)

1. Kafedra avtomaticheskikh izmereniy i ustroystv Novocherkasskogo politekhnicheskogo instituta (for Pekker). 2. Kafedra elektricheskikh mashin, apparatov, matematicheskikh i schetnoreshayushchikh priborov i ustroystv Novocherkasskogo politekhnicheskogo instituta (for Nikitenko).

(Electric apparatus and appliances)

PEKKER, Icel' Iosifovich, kand. tekhn. nauk, dotsent

Calculation of magnetic systems using a field source integration method. Izv. vys. ucheb. zav.; elektromekh. 7 no.9: 1047-1051 '64 (MIRA 18:1)

1. Kafedra avtomatiki i telemekhaniki Novocherkasskogo politekhnicheskogo instituta.

PEKKER, I.I., kand. tekhn. nauk

Calculation of the inductance of shell-type electromagnets with large air gaps. Elektrotekhnika 36 no.7:49-53 Jl '65. (MIRA 18:7)

PEKKER, I.I., kand. tekhn. nauk; LOBZA, G.S., inzh.

Calculation of the optimum size of a shell-type d.c. electromagnet. Elektrotekhnika 36 no.4:55-57 Ap '65. (MIRA 18:5)

PEKKER, Ioel' Iosifovich, kand. tekhn. nauk, dotsent

Calculation of the inductance of electromagnets with Ш and П shaped yokes and armatures. Izv. vys. ucheb. zav.; elektromekh. 7 no.10:1187-1194 '64. (MIRA 18:1)

1. Kafedra avtomatiki i telemekhaniki Novocherkasskogo politekhnicheskogo instituta.

KUZOVLEVA, F.Ya., inzh.; PEKKER, I.I., kand.tekhn.nauk

Verification calculation of a shell-type electromagnet using a digital computer. Elektrotekhnika 35 no.4:52-54 Ap '64. (MIRA 17:4)

L 18988-63 EWT(1)/BDS/EED-2 ASD/ESD-3/AFMTC/APGC/AFWL/IJP(C)/SSD
PI-4 GC

ACCESSION NR: AP3005687 S/0146/63/006/004/0145/0150

AUTHOR: Pekker, I. I.; Fandeyev, Ye. I.; Shukshunov, V. Ye.

TITLE: Radiation-type temperature detector for moving surfaces

SOURCE: IVUZ. Priborostroyeniye, v. 6, no. 4, 1963, 145-150

TOPIC TAGS: temperature detector, radiation temperature detector, NPI temperature detector

ABSTRACT: Investigations made by the authors revealed that, when the radiation factor of the surface in question is sufficiently stable, use of radiation-type temperature detectors (even at 50-200C) is very efficient. An NPI temperature detector developed by the authors (in cooperation with Engineer B. N. Vasil'yev, mechanics R. P. Khokhlachev and A. A. Khodakov, and laboratory worker A. M. Bazy*kina) is a total-radiation pyrometer insensitive to high humidity, aggressive gases, vibration, or shock. The general appearance and construction

Card 1/2

L 18988-63

ACCESSION NR: AP3005687

(drawing) of the NPI instrument are presented. Laboratory and industrial tests of experimental models showed that their error is ±2.5% or less of full scale with the ambient temperature variation within 20-50C. Orig. art. has: 3 figures and 8 formulas.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut im. Sergo Ordzhonikidze (Novocherkassk Polytechnic Institute)

SUBMITTED: 06Jan63 DATE ACQ: 06Sep63 ENCL: 00

SUB CODE: IE NO REF SOV: 003 OTHER: 002

Card 2/2

PEKKER, I.I., kand. tekhn. nauk

Traction force of shell-type electromagnets with conical core ends. Vest. elektroprom 34 no.6:63-65 Je '63. (MIRA 16:7)

(Electromagnets)

PEKKER, Icel' Iosifovich, kand.tekhn.nauk, dotsent

Principles of the design of electromagnets using consecutive approximations. Izv. vys. ucheb. zav.; elektromekh. 6 no.6: 775-777 '63. (MIRA 16:9)

1. Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta.
(Electromagnets)

PEKKER, Iosl' Iosifovich, kand.tekhn.nauk, dotsent

Calculation of the inductance of Ш and ⊓-type electromagnets with plane armatures. Izv. vys. ucheb. zav.; elektromekh. 6 no.8:973-981 '63. (MIRA 16:9)

1. Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta.

KUZOVLEVA, Faina Yakovlevna; PEKKER, Iosl' Iosifovich, kand.tekhn.nauk, dotsent

Approximation of magnetization curves using electronic digital computers. Izv.vys.ucheb.zav.; elektromekhanika 8 no.6:611-614 '65. (MIRA 18:8)

1. Starshiy inzhener vychislitel'nogo tsentra Novocherkasskogo politekhnicheskogo instituta (for Kuzovleva). 2. Kafedra avtomatiki i telemekhaniki Novocherkasskogo politekhnicheskogo instituta (for Pekker).

PEKKER, Ioel' Iosifovich, kand.tekhn.nauk, dotsent; ZHURAVLEVA, Tat'yana Samoylovna, starshaya prepodavatel'nitsa

Check of permanent magnets using Hall transducers. Izv. vys. ucheb. zav.; elektromekh. 5 no.12:1379-1384 '62. (MIRA 16:6)

1. Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta (for Pekker). 2. Kafedra teoreticheskoy i obshchey elektrotekhniki Novocherkasskogo politekhnicheskogo instituta (for Zhuravleva).
(Magnets—Testing)

SOV/144-59-5-6/14

AUTHOR: Pekker, I.I., Candidate of Technical Sciences, Docent

TITLE: Determination of the Dimensions of an Iron-Clad ("Shell Type") Electro-Magnet of Given Initial Parameters by Means of Dimensionless Characteristics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 5, pp 44 - 52 (USSR)

ABSTRACT: Instructions on the design of electro-magnets usually take the form of checking one of given design. Little has been published about the method of selecting the dimensions of newly designed magnets. The equations given for the processes in electro-magnets are usually fewer than theunknowns in the equations, and so the designer is recommended to equalise them by assigning preliminary values to such magnitudes as the induction in the air gap. The remaining unknowns are then determined by solving the equations simultaneously. The calculations may be very laborious, particularly as the optimum design must be reached by comparing a number of variants. The design of a new electro-magnet can be greatly simplified if the theory of similarity is used to generalise and systematise

Card 1/5

Determination of the Dimensions of an Iron-Clad ("Shell Type") Electro-Magnet of Given Initial Parameters by Means of Dimensionless Characteristics

the experimental and theoretical data existing on various constructions. Magnets cannot be both geometrically and electromagnetically similar, if only because when the linear dimensions are increased the winding temperature increases proportionately. However, it follows from the theory of similarity that similar processes may occur in systems that are not geometrically similar. The problem is much simplified if, instead of complete similarity of the entire process, the designer requires only similarity of individual parts of it. For instance, in designing a magnet it suffices to provide a given tractive effort at the start of travel, considering only the starting conditions and leaving the conditions during the remainder of the stroke to be verified later. Given the initial

Card 2/5 values of the tractive effort and operating air-gap, the

Determination of the Dimensions of an Iron-Clad ("Shell-Type") Electro-Magnet of Given Initial Parameters by Means of Dimensionless Characteristics

iron-clad electro-magnet illustrated in Figure 1, which is intended to be connected to the supply for a considerable period, can be characterised by the dimensionless complexes given in Eqs (1), (2), (3) and (4). These expressions do not include the magnetic characteristics of the core material as it is assumed that the m.m.f. of the coil is mostly expended in the air gaps, so that the reluctance if the steel may be neglected. The relationship between these dimensionless complexes for tractive effort, time-constant, magnetic induction and volume of magnetic system may be conveniently represented in the form of a family of curves in which the main dimensions of the electro-magnet are the independent variables. Curves of this kind for several cases are given in Figures 2, 3, 4 and 5; the graphs were calculated from formulae given in a previous article. The units to be employed when using these graphs are stated. Formulae (1), to (4) are then re-written in terms of the units selected. A worked example illustrates the selection of the dimensions

Determination of the Dimensions of an Iron-Clad ("Shell-Type") Electro-Magnet of Given Initial Parameters by Means of Dimensionless Characteristics

of an electro-magnet, using the curve given. The direct-current magnet is designed to have a tractive effort of 15 kg with an initial air-gap of 2 cm and a supply voltage of 220 V. The design is then worked through and checked for arithmetical errors. The core and windings are fully designed and temperature rises calculated. The time constant is determined. The example shows that, given dimensionless characteristics for a fairly large number of magnets, the best design can be selected by means of a few elementary arithmetical operations. The example was that of an iron-clad magnet operating continuously, and naturally other designs and operating conditions would introduce special features into the calculation. Other formulae might be required for other cases but the main

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Determination of the Dimensions of an Iron-Clad ("Shell-Type") Electro-Magnet of Given Initial Parameters by Means of Dimensionless Characteristics

idea of the calculation using dimensionless characteristics is always very useful.
There are 5 figures and 7 Soviet references.

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh ustroystv, Novocherkasskiy politekhnicheskiy institut (Chair of Automatic and Measuring Apparatus, Novocherkassk Polytechnical Institute)

SUBMITTED: March 28, 1959.

PEKKER, I.I.; TITARENKO, V.N.

Technical control of permanent magnets. Trudy inst. Kom.stand.mer i izm. prib no.64:118-122 '62. (MIRA 16:5)
(Magnets—Standards)

MARKIN, P.P.; PEKKER, I.I.

Equipment for the testing of magnetically soft materials. Trudy inst. Kom.stand.mer i izm. prib no.64:187-190 '62. (MIRA 16:5)
(Magnetic materials) (Cathode ray oscillograph)

MARKIN, P.P.; PEKKER, I.I.

"Ferrotester" for permanent magnets. Trudy inst. Kom.stand.mer i izm. prib no.64:139-144 '62. (MIRA 16:5)
(Magnets—Testing) (Cathode ray oscillograph)

BATURO, V.I., inzh.; NIKITENKO, A.G., inzh.; PEKKER, I.I., kand.tekhn.nauk

Replacement of copper coils with aluminum coils in a.c. apparatus. (MIRA 16:5)
Vest. elektroprom. 34 no.5:63-64 My '63.
(Electric coils)

PEJKER, I.I.; DOMANOV, A.D.; SHMOYLOV, N.F.; KOMOV, A.N.

Automatic instrument for the sorting of permanent magnets according to their magnetic properties. Trudy inst. Kom.stant.mer i izm. prib no.64:123-129 '62. (MIRA 16:5)
(Magnets—Standards) (Magnetic measurements—Equipment and supplies)

PEKKER, I.I., kand.tekhn.nauk

Calculation of the strength of shell-type electromagnets with plane core ends. Vest. elektroprom. 33 no.5:69-71 My '62. (MIRA 15:5)

(Electromagnets)

SOV/144-59-10-10/20

AUTHOR: Pekker, I.I., Candidate of Technical Sciences, Docent

TITLE: Determination of the Dimensions of AC Magnets by Means of Dimensionless Characteristics

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 10, pp 82 - 90 (USSR)

ABSTRACT: Previous articles by the same author in this journal, Nrs 5-7, 1959, have dealt with the design of DC electro-magnets by means of dimensionless characteristics. The present article applies the same idea to the design of AC electro-magnets. In an AC electro-magnet with a voltage winding the current in the coil depends on the gap between the core and armature. If the gap is normally closed, the current is at its minimum value for continuous rating. However, in most practical cases, it is necessary to calculate the tractive effort whilst the gap is still open. The current is then much greater than the continuous rated current. Hence the design has to be based on consideration of both open and closed positions and it is impracticable to include both cases in a single set of design formulae. Therefore, one position only is considered first and then the design is checked to see whether it meets the

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Determination of the Dimensions of AC Magnets by Means of Dimensionless Characteristics

requirements of the other position and, if necessary, a compromise is reached.

In general, the design of AC magnets is more complicated than that of DC because of iron loss due to eddy currents and hysteresis, screening effects and other factors. The usual semi-empirical formulae are not always accurate enough. Dimensionless characteristics provide an effective means for generalising available test data on existing systems for the purpose of designing new ones. The amount of work involved is small and the actual design consists only of carrying out a number of simple arithmetical operations.

A number of dimensionless characteristics are then introduced in Eqs (1)-(13) and others may also be used if necessary.

The method of constructing the dimensionless characteristics is illustrated with reference to the particular case shown in Figures 1 and 2, each of which has an E-shaped core, in one case with an E-shaped and in the other case with a bar

Determination of the Dimensions of AC Magnets by Means of Dimensionless Characteristics

armature. The important dimensions are indicated on the figures and numerical values of these dimensions and other typical data for four magnetic systems investigated by the author are given in Table 1. Table 2 gives the calculation of the dimensionless characteristics for magnetic system Nr 2 of Table 1. The calculation is based on experimental curves of current and tractive effort, as a function of air gap. Designs for the other systems given in Table 1 were made in a similar way and the results are plotted in Figures 3, 4 and 5.

Once these dimensionless characteristics are available, electro-magnets complying with given initial requirements can be designed. This is illustrated by a numerical example of the design of an electro-magnet having the minimum volume of active materials for given initial data. The design of the magnetic system is first worked out, then the coils and finally the temperature rise is checked. A number of design variants are tried and the best one chosen. Of course, the more experimental data there is

Determination of the Dimensions of AC Magnets by Means of Dimensionless Characteristics

available the quicker and better can the design requirements be met. If industry would devote more time to the accumulation of generalised data on electro-magnetic mechanisms a great deal of design time could be saved.
A check calculation of the design is made by a method described by the author in an article in Vestnik elektro-promyshlennosti, 1949, Nr 12 and the agreement is found to be very satisfactory.
There are 6 figures, 2 tables and 3 Soviet references.

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh ustroystv, Novocherkasskiy politekhnicheskiy institut (Chair for Automatic and Measuring Devices, Novocherkassk Polytechnical Institute)

SUBMITTED: May 28, 1959

PEKKER, Ioel' Iosifovich, kand.tekhn.nauk, dotsent; TSOKANOV, Viktor Vasil'yevich, inzh.

Voltage stabilizer with a transformer magnetized by a permanent magnet. Izv.vys.ucheb.zav.; elektromekh. 3 no.2:132-139 '60. (MIRA 13:7)

1. Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta (for Pekker).

(Voltage regulators)

SOV/144-59-7-7/17

AUTHOR: Pekker, I.I., Candidate of Technical Sciences, Docent

TITLE: Dimensionless Characteristics for Designing a Shell-type Electromagnet for Intermittent Duty

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 7, pp 45-47 (USSR)

ABSTRACT: A previous article by the same author published in this journal Nr 5, 1959, gave dimensionless characteristics for the design of a shell-type electromagnet for operation on a long-duty cycle. This article describes the changes in the main design formulae for a short-duty cycle, which is of considerable practical interest. Formula (1) indicates the permissible current density in an electromagnet coil on a short duty cycle. Then expression (2) may be derived for the magnetising ampere-turns of the coil. The permeance is expressed in the form of Eq (3), as in the previous article. Maxwell's formula is used to derive expression (8) for the tractive effort of the magnet. Formula (12) is derived for the maximum magnetic induction. The same curves and procedures may be used as were described in the previous article, but expression (13) is necessary for determining the short-term tractive effort.

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SOV/144-59-7-7/17

Dimensionless Characteristics for Designing a Shell-type Electro-Magnet for Intermittent Duty

There are 2 Soviet references.

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh ustroystv, Novocherkasskiy politekhnicheskiy institut
Card 2/2 (Chair of Automatic and Measuring Apparatus, Novocherkassk polytechnical Institute)

SUBMITTED: May 11, 1959

PEKKER, I.I.

Experimental methods for determining the relationship between flux interlinkage and the air gap in a traction electromagnet. Izv. vys. ucheb. zav.; elektromekh. 4 no.2:159-161 '61. (MIRA 14:9)
(Electromagnets)

Grapho-analytical Calculation of the Dynamic Characteristics of Electro-magnets

As the starting equation the author uses the following: equation of the circuit of the electro-magnet winding:

$$u(t) = ir + \frac{d\psi}{dt} \quad , \tag{1}$$

equation of motion of the mechanical system of the electro-magnet

$$F = m \frac{d^2x}{dt^2} + f(x) \tag{2}$$

equation of the pull of the electro-magnet

$$F = \left(\frac{\Phi_\lambda 10^5}{5} \right)^2 \frac{1}{S} \tag{3}$$

Card 2/5 In these u(t) is the voltage (usually a time function)

Grapho-analytical Calculation of the Dynamic Characteristics of Electro-magnets

applied to the terminals of the winding,
i - current intensity in the winding,
r - resistance of the winding, which is assumed as remaining constant during the operation of the electro-magnet.
ψ - coupled flux of the winding, in volt seconds,
F - pull, kg,
m - mass of the mobile system, reduced to the core
x - travel, cm,
t - time, sec,
f(x) - force, kg, acting against the movement of the core, not taking into consideration inertia forces,
Φ_λ - flux emanating from the face of the electro-magnet core,
S - cross-section (cm^2) of the pole.

The application of the relationships derived in the paper is illustrated on the calculation of the dynamic

Grapho-analytical Calculation of the Dynamic Characteristics of Electro-magnets

characteristics of an electro-magnet, a sketch of which is shown in Fig 3, p 94. The initial gap of 1.85 cm closes completely. The obtained results are compared with experimentally recorded oscillograms. The experimentally determined closing time is 0.077 sec, whilst the here described method yielded a value of 0.068 sec. In the given case, all the characteristics of the electro-magnet, which were necessary for the calculations, were determined analytically and the experimental magnitudes were determined from a recorded oscillogram. The author expresses the view that in spite of the 11.6% difference between these values the agreement between experimental and calculated results can be considered satisfactory.
There are 8 figures, 3 tables and 4 Soviet references.

SOV/144-58-6-12/18

Grapho-analytical Calculation of the Dynamic Characteristics of Electro-magnets

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh ustroystv, Novocherkasskiy politekhnicheskiy institut (Chair for Automation and Metering Apparatus of the Novocherkassk Polytechnical Institute)

SUBMITTED: June 8, 1958

Card 5/5

PEKKER, I.I.

Noncontact timer operating as a function of temperature. (MIRA 13:6)
Priborostroenie no.4:29-31 Ap '60.
(Automatic timers)

PEKKER, I.I., dotsent

Duration of the motion of the armature of an electromagnet. Elektrichestvo no.7:86 Jl '62. (MIRA 15:7)

1. Novocherkasskiy politekhnicheskiy institut.
(Magnetoelectric machines)

SOV/144-58-9-3/18

AUTHOR: Pekker, I. I., Candidate of Technical Sciences, Docent

TITLE: On Representation of Dynamic Characteristics of Electro-Magnets by Means of Power Series (O predstavlenii dinamicheskikh kharakteristik elektromagnitov s pomoshch'yu stepennykh ryadov)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1958, Nr 9, pp 16-20 (USSR)

ABSTRACT: Dynamic characteristics of an electromagnet, which give the motion of a yoke, may be calculated by representing the characteristics required in the form of power series and by subsequent determination of the coefficients of various terms in these series (Refs 1-3). The author discusses the limits of applicability of the formulae used for such calculations. He deals with a linear magnetic system, i.e. a system in which the inductance does not depend on the current but is a single-valued function of the magnetic gap. The author concludes that the power-series method of calculation of the dynamic characteristics of electromagnets may be recommended only when the duration of motion of the electromagnet yoke is smaller than the time constant of

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On Representation of Dynamic Characteristics of Electromagnets by Means of Power Series

the electromagnet winding before the yoke motion begins. Both the inductance of the electromagnet winding and the total force opposing the yoke motion should be continuous functions of the yoke displacement and should possess all derivatives. In an appendix the author deals with a particular electromagnet described in his earlier work (Ref 7). He finds that the power-series method is not applicable in this case because the time constant of the electromagnet is 0.01 sec while the total time required for the motion of the yoke across a 1.85 cm gap is 0.06 sec. The paper is entirely theoretical. There are 7 Soviet references.

ASSOCIATION: Kafedra avtomaticheskikh i izmeritel'nykh ustroystv Novocherkasskogo politekhnicheskogo instituta (Chair of Automatic and Measuring Apparatus Novocherkassk Polytechnical Institute)

SUBMITTED: August 6, 1958

S/144/61/000/006/004/004
D207/D306

AUTHORS: Pekker, I.I., Docent, Candidate of Technical Sciences, and Zhuravleva, T.S., Senior Instructor

TITLE: Summary of the conference on methods and instruments for testing of magnetic materials

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Elektromekhanika, no. 6, 1961, 109-113

TEXT: The conference was opened by Professor Ye. G. Shramkov, who formulated its purpose and main problems in the field of magnetic measurements. It was necessary, he said, to elaborate unified terminology, as it contains at present great differences. Three main problems require rapid solution: 1) Development of normative characteristics for different conditions and tasks of testing ferromagnetic materials; 2) The instruments for testing of ferromagnetic materials are produced in insufficient quantities and qualities; 3) It is necessary to create devices for determining basic properties of ferromagnetic materials with high accuracy and rapidity. Measurements should be based on the principle of compensation.

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Summary of the conference...

The first group of lectures was on methods of measurements and instruments for this purpose. N. G. Chernysheva (VNIIM) spoke on the increase of responsibility of producers for the quality of production. Producers should publish catalogues specifying average properties of materials produced and possible deviations. GOSTs for magnetic materials do not contain so far any developed sections on methods and instruments for testing magnetic properties of materials, nor on admissible errors in mensurements. Methods of standard testing for all magnetic materials produced in the Soviet Union should be developed. There are not enough instruments to carry out testing, especially in factories producing such materials. O. N. Al'tgauzen (NII Chermet, Moscow) spoke on the automation of magnetic measurements and the choice of parameters to characterize the material in different working conditions. Special emphasis was laid on standards for conditions of measurements. I. M. Rozhanovskiy (Kiyevskiy politekhnicheskiy institut) discussed unification of magnetic characteristics in variable magnetic fields. It is suggested feeding the magnetization circuit of a ferromagnetic specimen with a sinusoidal voltage and then to determine reversible and irreversible energetic processes from first harmonics

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Summary of the conference...

of distorted curves. Professor M. A. Rozenblat (Institut avtomatiki telemekhaniki AN SSSR) criticized the above suggestion, showing that such a basis for the unification of characteristics is not acceptable, as it does not reflect the peculiarities of different working conditions. N. A. Semenova (NII Chermet, Moscow) spoke on the measurements of magnetic characteristics of alloys with high permeability in different conditions of magnetization. It was stated that different conditions change the curve of dependence of permeability in field intensity. The second report of the same author was on methods of determining initial permeability of modern magnetic alloys. R. I. Yanus, Yu. A. Vdovin and V. V. Druzhinin (Institut fiziki metallov sverdlovskogo filiala AN SSSR) discussed the results of study on creating and testing, in industrial conditions, automatic devices for the industrial control of quality of electrotechnical sheet steel. P. P. Markin (Politekhnicheskiy institut, Novocherkassk) spoke on the electronic ballistic galvanometer which he invented with the same sensitivity as the present GZB-47, simplicity in handling and rapidity of measurements. I. I. Pekker and P. P. Markin (Novocherkasskiy politekhnicheskiy institut) discussed a ferro-tester for constant magnets - a semi-automatic device which permits representation of a hysteresis loop

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Summary of the conference...

of a permanent magnet to be obtained on the screen of electronic oscillograph. Sh. I. Zusman (NII Chermet, Moscow) discussed methods of controlling the thermal treatment of magnetic hard alloys with the aid of continuous observation of hysteresis loops on an oscillograph screen, in the temperature interval: room temp. - 900°C. Ye. N. Chechurina examined the work of VNIIM in the field of methods and instruments for testing normal specimens of ferromagnetic materials in the frequency region 50 cycles - 1 megacycle and in conditions of complex magnetization. S. M. Nizhniy and Ye. A. Budnitskaya spoke on device (Y5017) U5017 - (an improvement of U520) - an alternating current bridge for determining inductance and equivalent resistance for losses (as a function of magnetic field intensity or magnetic induction) of coils with specimens of ferromagnetic materials in ring form as cores. Frequency region: 400 - 10,000 cycles. I. I. Kifer and Tseplyayeva (MEI, Moscow) examined a method of determining characteristics of cores of ferro-sounds, showing the dependence of the second harmonic on magnitude of a sub-magnetizing field and the amplitude of an excitation field. E. S. Vasilevskaya, G. N. Pivigina, L. N. Syrkina, V. I. Telyatnikov and M. A. Shamovskaya (Leningrad) looked at methods and

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Summary of the conference...

instruments for measuring dynamic magnetostriction parameters, based on the theoretical study of transition processes in a magnetostriction vibrator with pulsed excitation. L. V. Mitel'man (Leningrad) examined two-coordinate automatic broad-band recorders for measuring parameters of ferromagnetic materials. Ya. P. Tsar' (L'vov) spoke on a device for the oscillographic observation of hysteresis loops at high and low frequencies of magnetization. P. P. Markina discussed a device for testing magnetically soft materials. O. A. Herashchenko, P. I. Dekhtyarenko and V. P. Karpenko (Kiyev) looked at an analysis of automatic regulation circuits of a differential calorimeter. A. L. Grokhol'skiy (Novoskbirsk) discussed devices for measuring magnetic characteristics of ferromagnetic materials in the frequency region 100 kilocycles - 100 megacycles. I. I. Pekker and V. N. Titarenko discussed some problems of technical control of permanent magnets. It is suggested basing such control on the working point of the characteristic or on a given segment of the demagnetization curve. T. S. Zhuravleva spoke on new instruments using the Hall effect in semiconductors for testing permanent magnets. G. Kh. Valyamyae (Tallin) lectured on a permeameter for continuously measuring magnetic properties

Summary of the conference...

of ferromagnetic materials. N. Ye. Fevraleva and S. G. Taranov (Institut elektrotekhniki ukrainskoy AN Kiyev) spoke on a device for measuring induction in magnetic systems with an air gap of 0.8mm and more: Limit of measuring - 3000 gauss. I. I. Pekker, A. D. Domanov, N. F. Shmoylov and A. N. Komov spoke on an automatic device for testing permanent magnets according to their magnetic properties: The control of magnets used in electric energy meters, by comparing demagnetization curves of tested magnet and standard magnet. T. I. Vasyutin and V. M. Yurchenko discussed measuring characteristics of ferrite cores in quasi-stationary regimes. E. M. Mushkarden spoke on a device for measuring complex magnetic permeability of ferrites in a radio frequency band. Ye. I. Gurvich and L. B. Shchukin examined the choice of a system of parameters and methods of measuring large quantities of ferrite cores with a rectangular hysteresis loop, used in automatic digital computers. L. I. Rabkin and N.P. Goryachev examined pulse measurements of ferromagnetics. A. Z. Veksler spoke on the determination of a magnetization curve in pulse regime. V. V. Bardizh lectured on static and pulse parameters of magnetic cores with rectangular hysteresis loop. Yu. I. Vizun spoke on instruments for investigating

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pulse properties of magnetic cores. Three lectures were given on problems of measuring magnetic properties of thin films (K. M. Polivanov, A. L. Frumkin, I. A. Yefimov). A. Korsunskiy discussed instruments for investigating the domain structure of ferromagnetic films.

ASSOCIATION: Novocherkasskiy orden trudovogo krasnogo znameni politekhnicheskiy institut (Order of Red Banner of Labor, Polytechnic Institute of Novocherkassk)

L 33115-66

ACC NR: AP6024083 SOURCE CODE: UR/0144/66/000/002/0235/0236

AUTHOR: Zav'yalov, A. S.; Got'man, A. A.; Molchanov, V. D.; Krasyuk, N. P.; Agranovskiy, K. Yu.; Berger, A. Ya.; Greyer, L. K.; Yesakov, V. P.; Miller, Ye. V.; Pyatman, K. I.; Abryutin, V. M.; Gubanov, V. V.; Oranskiy, M. I.; Yevseyev, N. Ye.; Norkin, G. B.; Sinol'nikov, Ye. M.; Avilov-Karnaukhov, B. N.; Bogush, A. G.; Bolyayev, I. P.; Fokker, I. I.; Chernyavskiy, F. I.

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B

ORG: none

TITLE: O. B. Bron (on his 70th birthday)

SOURCE: IVUZ. Elektromekhanika, no. 2, 1966, 235-236

TOPIC TAGS: electric engineering personnel, circuit breaker

ABSTRACT: Osip Borisovich Bron was born in 1896 in Klintsi. In 1920, he graduated from the physics-math faculty of Khar'kov Technological Institute. He became a professor in 1930. He defended his doctor's thesis in 1940. During the second world war, he was in the navy. After demobilization in 1950, Engineer Colonel Bron went to work teaching at the Leningrad Industrial Correspondence School. He became the head of the Chair of Theoretical Bases of Electrical Technology in 1958. He is closely associated with scientific and development work, and has cooperated closely in this area with the Leningrad "Elektrosila" plant since 1946. His work has been in the areas of spark-damping and high-power circuit breakers. He has published over 140 scientific works and 19 inventions. [JPRS]

SUB CODE: 05, 09 / SUBM DATE: none

Card 1/1

PEKKER, I.I., dotsent, kand.tekhn.nauk

Results of the meeting on methods and apparatus for testing magnetic materials. Izv. vys. ucheb. zav.; elektromekh. 4 no.6:109-113 '61. (MIRA 14:7)
(Electric motors)

PEKKER, I.I.; NIKITENKO, A.G.

Maximum and actual efficiency of electromagnets. Izv. vys. ucheb. zav.; elektromekh. 3 no.11:91-97 '60. (MIRA 14:12)
(Electromagnets) (Electromechanical analogies)

MAREIN, Petr Petrovich, starshiy prepodavatel'; PEKKER, Ioel' Iosifovich, kand.tekhn.nauk, dotsent

Apparatus using small strip sample of steel for determining the magnetic characteristics of sheet steel used in electrical engineering. Izv. vys. ucheb. zav.; elektromkh. 3 no.7:99-102 '60. (MIRA 13:9)

1. Novocherkasskiy politekhnicheskiy institut.
(Sheet steel--Magnetic properties)
(Magnetic instruments)

KUZOVLEVA, Faina Yakovlevna; PEKKER, Izel' Iosifovich, kand. tekhn. nauk, dotsent

Calculation of the static characteristics of a.c. electromagnets using a digital computer. Izv. vys. ucheb. zav.: elektromekh. 7 no.5:626-627 '64. (MIRA 17:9)

1. Vychislitel'nyy tsentr Novocherkasskogo politekhnicheskogo instituta (for Kuzovleva). 2. Kafedra avtomatiki i telemekhaniki Novocherkasskogo politekhnicheskogo instituta (for Pekker).

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S/144/60/000/011/006/008
E194/E255

9.6100

AUTHORS: Pekker, I. I., Candidate of Technical Sciences, Docent and Nikitenko, A. G., Senior Instructor

TITLE: The Limiting and Actual Operating Capacity of Electro-Magnets

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1960, No. 11, pp. 94-97

TEXT: In designing electro-magnets it is important to know the maximum mechanical work that they can perform. The static traction characteristic of an electro-magnet obtained with constant operating current is sketched. In fact, this amount of work cannot be obtained, because for any finite rate of motion of the armature the back e.m.f. reduces the current in the magnet coil to below the steady-state value. The usual procedure of assessing the "nominal useful work" of the magnet is not recommended, for reasons which are explained. Attempts to obtain an analytical expression for the actual work performed by the magnet have so far not been successful because the processes in a magnet are complex and lead to a system of non-linear equations. It is then shown on a particular example that,

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E194/E255

The Limiting and Actual Operating Capacity of Electro-Magnets

depending on the conditions, the actual work performed by the electro-magnet may differ more or less from the maximum and 'nominal useful' work. An electronic model of an electro-magnet was made up; the block diagram is given. The model was used to investigate dynamic processes occurring in an electro-magnet under various conditions. In principle, the investigations could have been carried out on an actual magnet, but this would have made the difficulties very much greater. Previous work has shown that it is perfectly permissible to use an electronic model. A typical curve of counter-forces for many contactors and relays is shown. The static work of the electro-magnet was taken as the work done to overcome the counter-forces over the entire path of the armature. The results are presented in the form of tables. It is shown that in the case considered the actual work ranges from 0.1 to 0.6 of the maximum work, or from 1.7 to 6.8 of the 'nominal work'. Whenever it is necessary to assess the actual work performed by a magnet, the dynamic processes in the system driven by the magnet must be investigated. There are 3 figures,

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SOV/144-58-10-15/17

AUTHORS: Pekker, I.I. (Iosif Iosifovich), Candidate of Technical Sciences, Docent and Zhuravleva, T.S., Senior Lecturer

TITLE: Use of a Differential Circuit with Semiconducting Hall E.M.F. Probes in Industrial (Quality) Control of Permanent Magnets (Primeneniye differentsial'noy skhemy vklyucheniya poluprovodnikovykh datchikov E.D.S. Kholla dlya promyshlennogo kontrolya postoyannykh magnitov)

PERIODICAL: Isvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1958, Nr 10, pp 151-156 (USSR)

ABSTRACT: Magnetic properties of permanent magnets may vary considerably due to even small departures from chemical composition and the conditions of thermal treatment. It is known that even in magnets from one melt the values of remanent induction and other parameters may vary between 15 and 20%. For this reason 100% control of magnetic properties of permanent magnets is desirable. Under the conditions of mass production of permanent magnets of only one type, the quality control should be fully automatic. When permanent magnets are produced in small batches full automation of the quality control is

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Use of a Differential Circuit with Semiconducting Hall E.M.F. Probes in Industrial (Quality) Control of Permanent Magnets

too expensive. In such cases it is necessary to have simple and reliable instruments which give highly reproducible results in non-automatic quality control. There are two widely used non-automatic methods in quality control of permanent magnets, the ballistic method and the use of a fluxmeter. Both these methods are not very accurate and the instruments used are easily damaged under industrial conditions. The Novocherkassk Permanent Magnet Factory asked the authors to develop a simple and reliable instrument for quality control of magnets under industrial conditions. Survey of the subject showed that the most suitable method would be one based on the Hall effect in semiconductors. There were two possibilities: either a direct-reading method or a differential (comparison) one could be used. The latter was chosen because it had certain advantages, to be mentioned later, over the direct-reading method. The comparison method requires a standard. This standard was a magnet whose magnetic properties were at the lower limit of permissible values. On testing, the induction

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of a sample should be always equal to or greater than that of the standard. The diffential circuit using two Hall emf probes is shown in Fig 1. Each of these probes has an independent power supply. The power supplies may use either dry batteries, for example those of 1KS-U-3 "Saturn" type which supply 1.6 V each and are of 3.2 amp/hour capacity or the usual DGTs-based rectifier circuits. Each semiconducting probe was in the form of a rectangular plate. A milliammeter and a rheostat (R_1 and R_2), were included in each probe circuit in order to control the working current through the probe. The working current has to be chosen with care. If this current is too small the probe sensitivity is low (the Hall emf is too small for reliable reading). At high currents heating of the probes will distort the linear dependence of the Hall emf on the working current. The working current must be also of such value as to avoid the pointer of a null indicator going beyond its scale limits under conditions of unbalance. Each Hall probe

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circuit includes also a low-resistance rheostat between the working contact of the probe and the Hall emf contact. These rheostats are shown as r_1 and r_2 in Fig 1. They are used to set the null indicator to zero in the absence of magnetic fields. The apparatus for quality control of permanent magnets consisted of two parts: (a) the differential measuring circuit with two Hall emf probes, described above, and (b) a null indicator (a tube amplifier or a galvanometer). Fig 2 shows the front panel and Fig 3 the interior of the instrument. The Hall emf probes were mounted in slots in V-shaped magnetic conductors. The standard and the tested magnets were placed in the sockets in such a way as to close the magnetic circuit of the V-shaped conductor. The magnetic circuit in the instrument may be made in exactly the same form as that in which the tested magnets are to be used eventually. The front panel contains also a milliammeter, a switch by means of which this milliammeter can be used to measure the working current in either of the Hall probe circuits and four handles

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of the rheostat slides (r_1, r_2, R_1, R_2). The magnetic induction of the standard magnet is compared with that of a tested magnet by means of the two Hall emf probes, shown in Fig 1. Separate power supplies of the two probes ensure that the internal resistances of the Hall probes do not affect the voltage across them. The null indicator shows the difference between the Hall emf's induced in the two probes. The null indicator may be also made to show the difference between the Hall currents. A special circuit was used to allow for the fact that even in the absence of a magnetic field there usually exist small potential differences between the Hall electrodes. The procedure in the use of the instrument is as follows: The null-indicator zero position is set by means of the rheostats r_1 and r_2 in the absence of a magnetic field. Two identical standard magnets are placed in the sockets of the instrument and the null indicator is set to zero again. This is done by adjusting the working current by means

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of rheostats R1 and R2. The standard and the tested magnets are then compared as follows: One of the standard magnets is removed from the right-hand socket and it is replaced by the magnet to be tested, leaving the other standard magnet in the left-hand socket. If the induction due to the tested magnet is not equal to that of the standard magnet, then the null indicator will show the magnitude and the sign of the difference of the Hall emf's induced by these two magnets. The Hall constant of the material used for the probes will vary with the temperature of the surrounding medium but this does not affect the instrument readings, since in the differential circuit used both probes are affected in the same way by the ambient temperature. In the case of varying external temperatures, all that is necessary is a check of the null indicator zero in the absence of a magnetic field and when two identical standard magnets are in the sockets. The instrument would have been much more compact and much lighter had it been possible to use a null galvanometer with a small internal resistance,

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a small external critical resistance, a small time constant and high voltage sensitivity. Such galvanometers are not at the moment produced by the Soviet industry and the authors had to use an electronic tube null indicator which made the circuit much more complex and the instrument larger and heavier. The instrument described has the following advantages: (1) simplicity of setting and operation; (2) a high degree of reproducibility; (3) it is possible to test magnets under the conditions in which they will be later employed; (4) within certain limits, the geometrical dimensions of the tested magnets do not affect the results; (5) variations of the ambient temperature do not affect the instrument. A prototype of the instrument was made by V.I.Bogach and B.A.Antonov, of the Theoretical and General Electrotechnology Chair at the Novocherkassk Polytechnical Institute. The Director of the factory laboratory V.N.Titarenko and workers of the Novocherkassk Permanent Magnet Factory helped greatly in testing the prototype under industrial

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conditions. The authors acknowledge a supply of high-quality semiconducting material, used for the Hall probes, by the Institute of Metallurgy imeni Baykov of the AS USSR. There are 4 figures and 5 references, 3 of which are Soviet, 1 English and 1 German.

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SUBMITTED: 18th October 1958

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